

**(PGDCA01)**

**Total No. of Questions : 10]**

**[Total No. of Pages : 02**

**P.G. DIPLOMA DEGREE EXAMINATION, MAY - 2018**

**COMPUTER APPLICATIONS**

**Information Technology**

**Time : 3 Hours**

**Maximum Marks : 70**

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**Answer any FIVE questions**  
**All questions carry equal marks**

**(5 × 14 = 70)**

- Q1)** Explain the role information technology in business success.
- Q2)** Discuss about evaluation of information systems.
- Q3)** Explain about different characteristics of digital computer.
- Q4)** What is ROM and RAM? Discuss different types of ROM's and RAM's.
- Q5)** Explain the architecture of Floppy disk and DVD-ROM.
- Q6)** What is an operating system? Discuss different services of operating system.
- Q7)** Explain about communication processors and communication media channels.

**Q8)** Explain about data life cycle and different sources of data.

**Q9)** What is internet? What are the services of the internet? Discuss.

**Q10)** Explain in detail about www, html and sgml, URL and surfing.



(PGDCA02)

Total No. of Questions : 10]

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P.G. DIPLOMA DEGREE EXAMINATION, MAY - 2018

COMPUTER APPLICATIONS

Programming with C++

Time : 3 Hours

Maximum Marks : 70

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Answer any FIVE questions  
All questions carry equal marks

(5 × 14 = 70)

- Q1)** Write about variables, constants and operators in C++.
- Q2)** What are the advantages of having call-by-reference over call-by-value? Write a C++ program to interchange two float values using call-by-reference.
- Q3)** a) Explain static data members and static member functions.  
b) Describe the cast operators in explicit type conversion.
- Q4)** Define class and object, with an example explain the concept of data abstraction and message passing mechanism.
- Q5)** Define a class called STUDENT with member function's to
- Read name, reg\_no and marks in 3 tests of a subject.
  - Calculate average of better 2 tests.
  - Print the data.
- Write a program in C++ to accept data of 'N' students and to process the data.
- Q6)** What are friend functions? Why are they used? Explain with an example.

**Q7)** Illustrate operator overloading with suitable example.

**Q8)** What are the different forms of inheritance? Briefly explain the different forms.

**Q9)** What is a virtual function? Illustrate with an example the usage of virtual functions.

**Q10) a)** Explain user-defined manipulator with an example.

**b)** Write about function templates with suitable example.



**(PGDCA03)**

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**P.G. DIPLOMA DEGREE EXAMINATION, MAY - 2018**

**COMPUTER APPLICATIONS**

**Computer Organization**

**Time : 3 Hours**

**Maximum Marks : 70**

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Answer any FIVE questions  
All questions carry equal marks

(5 × 14 = 70)

- Q1)** Discuss various generations of digital computer.
- Q2)** Discuss about performance assessment issues in digital computer.
- Q3)** What is an Interrupt? Explain the flowchart Interrupt cycle.
- Q4)** What is bus structure? Explain Multiple-Bus Hierarchies with neat diagram.
- Q5)** Discuss about the operation principle of magnetic disks and magnetic tapes.
- Q6)** Describe about seven RAID levels. How is redundancy achieved in a RAID system?
- Q7)** Explain IEEE floating point representation and perform addition of two floating numbers.

**Q8)** Discuss about various integer arithmetic operations with example.

**Q9)** What is pipelining? Write about pipelining strategy and pipelining performance.

**Q10)** Write about user visible registers, control and status registers.



**(PGDCA04)**

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**P.G. DIPLOMA DEGREE EXAMINATION, MAY - 2018**

**COMPUTER APPLICATIONS**

**Data Structures**

**Time : 3 Hours**

**Maximum Marks : 70**

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**Answer any FIVE questions**  
**All questions carry equal marks**

**(5 × 14 = 70)**

- Q1)** Draw and explain Abstract data type model. Explain properties of ADT with suitable example.
- Q2)** a) Explain about various asymptotic notations to compute algorithm complexity.  
b) Write about pattern matching graph and give algorithm for pattern match by the graph.
- Q3)** a) Write about various operations performed on linear data structures.  
b) Write an algorithm and flow chart to find largest value given set of integers and give its location.
- Q4)** How to create node in double linked list? Write a procedure to insert a node at the end and delete a node from the beginning of a doubly linked list.
- Q5)** a) Consider an example where the size of the queue is four elements. Initially the queue is empty. It is required to insert symbols 'A', 'B' and 'C'. Delete 'A' and 'B' and insert 'D' and 'E'. Show the trace of the contents of the queue.  
b) Write about various operations on circular queue.

**Q6)** What is a binary search tree? Create a binary search tree for inserting the following data.  
50, 45, 100, 25, 49, 120, 105, 46, 90, 95. Write a deletion operation in the above tree.

**Q7)** Explain insert and delete operations in AVL trees with suitable examples.

**Q8)** Illustrate tree traversing techniques with suitable example.

**Q9)** Write pseudo code of selection sort and tracing selection sort on following data :  
40, 20, 70, 11, 60, 56, 79, 33, 99, 87.

**Q10)** Write the Merge Sort Algorithm to sort the following numbers.  
12, 14, 25, 27, 11, 34, 13, 16, 45, 23, 52.



**(PGDCA05)**

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**P.G. DIPLOMA DEGREE EXAMINATION, MAY - 2018**

**COMPUTER APPLICATIONS**

**Operating Systems**

**Time : 3 Hours**

**Maximum Marks : 70**

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Answer any FIVE questions  
All questions carry equal marks

(5 × 14 = 70)

- Q1)** What are the system components of an operating system & explain them?
- Q2)** What are the different process states? Explain with a diagram and also various components of process control block.
- Q3)** Explain about inter process communication.
- Q4)** Explain the following CPU scheduling algorithm with an example.  
a) Round Robin.  
b) Shortest Job First.
- Q5)** Explain what semaphores are, their usage, implementation given to avoid busy waiting and binary semaphores.
- Q6)** Describe the I/O life cycle in detailed with neat diagram.
- Q7)** Explain in detailed about segmentation and implementation of segment table.

**Q8)** Explain the three major methods of allocating disk spaces in with suitable examples.

**Q9)** Explain the indexed and linked file allocation methods. Give the advantages and disadvantages in those methods.

**Q10)** Discuss various security issues in modern operating system.



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**P.G. DIPLOMA DEGREE EXAMINATION, MAY - 2018**

**COMPUTER APPLICATIONS**

**Database Management Systems**

**Time : 3 Hours**

**Maximum Marks : 70**

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**Answer any FIVE questions**  
**All questions carry equal marks**

**(5 × 14 = 70)**

- Q1)** a) What is information systems? Explain the components of information system with neat architecture.  
b) Describe the advantages of database systems.
- Q2)** Explain about various approaches to organizing the files.
- Q3)** a) What is pointer? Write about different types of pointers.  
b) Write about various locations methods with example.
- Q4)** Explain about network data model and relational data models with suitable examples.
- Q5)** Write about different steps to follow database design.
- Q6)** Illustrate database action diagram (DAD) with suitable example.
- Q7)** What is PC-FOCUS? Explain about PC-FOCUS manipulation and PC-FOCUS description?

**Q8)** Discuss various commands of data description language.

**Q9)** What is SQL? Discuss various SQL DML commands with syntax.

**Q10)** Explain about different security mechanism in database.



**(PGDCA07)**

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**P.G. DIPLOMA DEGREE EXAMINATION, MAY - 2018**

**COMPUTER APPLICATIONS**

**Accounts & Finance**

**Time : 3 Hours**

**Maximum Marks : 70**

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**Answer any FIVE questions**  
**All questions carry equal marks**

**(5 × 14 = 70)**

- Q1)** Define accounting. Explain the concepts and conventions of accounting.
- Q2)** Distinguish between single entry and double entry system of accounting. Explain the benefits of using double entry system.
- Q3)** Enumerate the need for preparing a Bank Reconciliation statement. State in which situations it should be prepared.
- Q4)** Define cost accounting. State its objectives.
- Q5)** Prepare a flexible budget in your own with various levels of production.
- Q6)** Explain the need for and significance of financial analysis.

**Q7)** What is meant by working capital? Explain about types of working capital.

**Q8)** Journalise the following transactions.

Jan. 1 Started business with Rs. 20,000

Jan. 4 Purchased goods from Ram Rs. 2,000

Jan. 5 Sold goods to Hari Rs. 2,000

Jan. 9 Sold goods to Ramlal for cash Rs. 3,000

Jan. 12 Purchased goods worth Rs. 600 from Ganesh

Jan. 15 Sold goods for cash Rs. 2,000

Jan. 18 Paid salaries Rs. 1,600

Jan. 20 Received commission from Gopal Rs. 200

Jan. 25 Paid interest on loan Rs. 300

Jan. 28 Received Rs. 1,900 from Krishna

**Q9)** From the following transactions prepare bank reconciliation statement.

i) Over draft balance as per cash book Rs. 2,000.

ii) Out of cheques issued 3000 payment was made for only Rs. 2,000.

iii) Rs. 20,000 cheques sent for collection Rs. 2,000 not realized upto the date of reconciliation.

iv) Bank charges recorded in the debit side of the cash book Rs. 20/-.

v) A cheque issued to Ram for Rs. 99 was recorded in the cash book as Rs. 9.

vi) Interest on investments Rs. 350 was realized by the banker but not recorded in the cash book.

vii) The cash book receipts side was over caste by Rs. 100.

viii) The pass book payments side was under caste by Rs. 300.

**Q10)** From the following trial balance prepare trading and profit and loss A/c for the year ended 31<sup>st</sup> March 2012 and balance sheet as on that date.

<b>Particulars</b>	<b>Debit Rs.</b>	<b>Credit Rs.</b>
Drawings	10,000	
Opening stock	46,000	
Purchase and Purchase returns	1,50,200	600
Cash in hand	3,400	
Bank balance	22,660	
Free hold premises	38,600	
Trade expenses	840	
Printing & Stationary	1,640	
Professional charges	280	
Commission Received	3,300	
10% Investments	4,000	
Interest on deposits	200	
Debtors & Creditors	36,000	29,000
Wages	25,000	
Salaries	14,000	
Capital	1,14,000	
Income-tax	1,600	
Discount allowed & Received	6,300	4,600
Sales return & sales	500	2,08,950
Bills Receivables & Bills payables	3,200	10,000
Office furniture	3,500	
Rent, rate & Insurance	4,000	
Provision for bad and doubtful debts		670
	3,71,320	3,71,320

**Adjustments :**

Outstanding wages Rs. 5,000.

Write off depreciation 5% on freehold premises and 10% on office furniture.

Insurance to the extent of Rs. 200 relates to 2012.

Stock on 31-12-2012 is Rs. 52,000.

Charge interest on capital at 5% and interest on drawings Rs. 300

Further bad debts are Rs. 1,000.

Provision for bad and doubtful debts 5% on debtors.

Make provision for discount on debtors and reserve for discount on creditors @2%.



**(PGDCA08)**

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**P.G. DIPLOMA DEGREE EXAMINATION, MAY - 2018**

**COMPUTER APPLICATIONS**

**Computer Graphics**

**Time : 3 Hours**

**Maximum Marks : 70**

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Answer any FIVE questions  
All questions carry equal marks

(5 × 14 = 70)

- Q1)** Demonstrate Midpoint Circle generating Algorithm with example.
- Q2)** Draw the architecture and explain working of raster scan display system.
- Q3)** What is window and view-port? Retrieve equation for the scaling factor to map the window to view-port in 2D viewing system.
- Q4)** A polygon has four vertices located at A (20, 10), B (60, 10), C (60, 30), D (20, 30). Calculate the vertices after applying a transformation matrix to double the size of the polygon with point A located on the same place.
- Q5)** Write about Cohen-Hodgeman line clipping algorithm with an example.
- Q6)** State and discuss about graphic input techniques.
- Q7)** Write a procedure to display file compilation.

- Q8)** a) Describe the properties of Bазier curves.  
b) Explain Scanline polygon fill algorithm in detail.

**Q9)** Explain about solid area scan conversion with example.

**Q10)** Discuss about three dimensional scaling, rotations and translations with their matrices.

